

REMARKS/ARGUMENTS

Bearing in mind the comments in the final Official Action and this amendment, the application is believed to be in condition for allowance. An early indication of the same would be appreciated.

Withdrawal of the objection to Drawing Figure 1 is requested. Responsive to the Examiner's objection, Fig. 1 has been amended to include the legend "Background Art".

Withdrawal of the rejection of claims 1 and 2 under 35 U.S.C. §112, second paragraph, as being indefinite, is requested. These claims have been amended in a manner which is believed to overcome the asserted bases for indefiniteness.

The Examiner stated that the term "*protection* a mains" in line 1 of claim 1 was unclear. However, claim 1 actually recites "...[a]n over-voltage protection device suitable for *protecting* a mains..."

If the source of possible confusion lies in use of the term "mains", as discussed during the telephone interview conducted July 1, 2003, Applicant offers the following definitions:

"Mains 1. In a power-distribution center, the lines that supply the entire system.

An example is the set of lines leading into a house. 2. The utility wires and associated outlets in a house or building."¹

Further, the term "main" is an "...expression for the alternating-current (ac) utility power available in a house or building".²

Applicant submits that claims 1 and 2, in view of the definitions above, are not indefinite. However, in order to expedite prosecution of this application, these claims have been amended to replace "mains" with the phrase "electrical supply".

¹ "The Illustrated Dictionary of Electronics", 7th ed., p. 424, Stan Gibilisco, McGraw-Hill, New York, 1997.

² Id. at p. 423.

Entry of these claim amendments after final rejection is respectfully requested, since these amendments were submitted merely in response to the Examiner's asserted indefiniteness. No new issues are reasonably raised by these clarifying amendments.

Withdrawal of the rejection of claims 1 and 2 under 35 U.S.C. §103(a) as being unpatentable over Applicant's background art in view of Ruckman (US 4,571,656) is requested. Applicant submits that there is no motivation to combine the references in the manner suggested by the Examiner and, even assuming, *arguendo*, that the motivation to combine the references is proper, the suggested combination does not teach or suggest all the claimed limitations of claims 1 and 2.

At the outset, Applicant notes that, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, *the prior art reference must teach or suggest all the claim limitations.*³ Further, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure.⁴

An essential evidentiary component of an obviousness rejection is a teaching or suggestion or motivation to combine the prior art references.⁵ Combining prior art references without evidence of a suggestion, teaching or motivation simply takes the inventors' disclosure as a blueprint for piecing together the prior art to defeat patentability – the essence of hindsight.⁶

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary

³ See MPEP §2143.

⁴ *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) and See MPEP §2143.

⁵ *C.R. Bard, Inc. v. M3 Systems, Inc.*, 48 USPQ2d 1225 (Fed. Cir. 1998)

⁶ *Interconnect Planning Corp. v. Feil*, 227 USPQ 543 (Fed. Cir. 1985)

skill in the art.”⁷ Further with regard to the level of skill of practitioners in the art, there is nothing in the statutes or the case law which makes “that which is within the capabilities of one skilled in the art” synonymous with obviousness.⁸ The level of skill in the art cannot be relied upon to provide the suggestion to combine references.⁹

By way of background, in the conventional device described in Applicant’s disclosure, the varistor performs two functions, so that it must meet two conditions:

1. After an over-voltage has occurred, the varistor must extinguish the gas-discharge arrestor (See Specification at p. 1, lines 21-33); and
2. At the end of life of the gas-discharge arrestor (short-circuiting), the varistor submitted to the voltage of the mains must heat up enough so as to cause the disconnection of the thermal-fuse element (See Specification at p. 2, lines 7-11).

Both conditions are antagonists, i.e., they contend against each other. Condition 1 means that, when the voltage between the two lines of the mains power supply is relaxing back towards the normal voltage after an over-voltage condition has occurred, the electrical resistance of the varistor must be higher than a certain value, so as to render the secondary current sufficiently small to extinguish the gas-discharge arrestor (See Specification at p. 1, lines 26-33).

The second condition indicated above means that the electrical resistance of the varistor at the normal voltage of the mains must be smaller than a certain value so as to produce enough heat to blow the thermal-fuse element (See Specification at p. 2, lines 7-11).

According to Joule’s law, the thermal power P dissipated by a varistor with electrical resistance R having voltage V applied is proportional to the square of the current I flowing through R, i.e., $P = I^2R$, or $P = V^2/R$.

Due to the conventional antagonism or contention of conditions 1 and 2 above, the varistor can meet both conditions only at a given voltage of the mains (electrical supply), or in a limited

⁷ See MPEP §2143.01, citing *In re Rouffet*, 149 F.3d, 1350, 1357, 47 USPQ2d 1453, 1457-8 (Fed. Cir. 1998).

⁸ Ex parte Gerlach and Woerner, 212 USPQ 471 (PTO Bd. App. 1980).

⁹ See MPEP §2143.01, citing *Al-Site Corp. v. VSI Int’l Inc.*, 50 USPQ2d 1161 (Fed. Cir. 1999).

range of voltages. In other words, the normal voltage of the mains has to be very close to the rated voltage of the varistor, which is a fixed value (See Specification at p. 2, lines 12-20). This is one technical problem that arises with Applicant's admitted background art, and which is solved by the disclosed and recited invention.

According to the recitations of claim 1, this problem is solved by providing, in parallel with the varistor, a resistor sized so as to cause a heating of the thermal-fuse element. Such heating triggers the disconnection of the over-voltage protection device after a short-circuiting of the gas-discharge arrestor.

Therefore, in the device according to claim 1, functions 1 and 2 discussed above are separated from each other. The varistor is therefore relieved of contending with condition 2. The electrical resistance of the varistor at the normal voltage of the mains can be selected higher than in conventional approaches, including in Applicant's background art. This means that the rated voltage of the varistor can beneficially be increased. As a consequence, the varistor in Applicant's claimed device meets condition 1 over a wider range of voltages.

More precisely, according to claim 2, the over-voltage protection device can operate safely in a range of voltages between a minimum voltage of use and a maximum voltage of use. The minimum voltage of use is the lowest voltage at which the resistor achieves a thermal disconnection of the thermal-fuse element. The maximum voltage of use is the highest voltage at which the varistor achieves the extinction of the gas-discharge arrestor.

Turning now to the applied art, Ruckman discloses circuit 10 for use in protection against transient impulse surge over-voltages from AC lines having an AC voltage of 120 volts rms (col. 2, lines 19-22 and 61-62). Ruckman does not teach or suggest a circuit having a range of operating voltages. Therefore, the person having ordinary skill in the art could not expect any solution to the above problem to be found in Ruckman. In fact, Ruckman is silent on the technical problem discussed above, and is certainly silent on providing any solution to the technical problem solved by Applicant's claimed invention.

Ruckman is submitted as being mainly concerned with improving the response time and energy dissipation of the circuit (column 2, lines 8-9). Stage 3 including gas discharge tube 32 is provided as an optional feature (col. 2, lines 55-56). Therefore, the person skilled in the art would not be motivated to consult Ruckman, which relates only marginally to devices which include a gas-discharge arrestor.

Further, no thermal-fuse element can be found in Ruckman. As a consequence, Ruckman does not teach or suggest any component, which could be tasked with ensuring a thermal disconnection of the protection circuit. Ruckman does not mention the purpose of resistor 36. However, resistor 36 cannot be tasked with ensuring a thermal disconnection of the protection circuit, since no thermal disconnection is provided. Ruckman completely leaves what happens at the end of life of gas discharge arrestor 32 out of consideration.

To summarize, if a person having ordinary skill in the art were to consult Ruckman, there would be no motivation to copy the structure of the third stage of circuit 10 in order to modify Applicant's background art in the manner suggested by the Examiner. Moreover, copying that structure and modifying Applicant's background art would not allow achievement of all the limitations of claim 1, since Ruckman does not disclose a resistor sized so as to cause a heating of a thermal fuse element, and which triggers the thermal disconnection of the over-voltage protection device.

In conclusion, Ruckman in combination with Applicant's background art, does not teach or suggest an over-voltage protection device suitable for protecting a an electrical supply, which includes, among other features, "...a resistor sized so as to cause, after a short-circuiting of the gas-discharge arrestor, a heating of the thermal-fuse element which triggers the thermal disconnection of the over-voltage protection device from the electrical supply", as recited in independent claim 1, as amended. Therefore, the unpatentability rejection of claims 1 and 2 is submitted as being deficient.

In view of the above, each of the presently pending claims 1 and 2 in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to

issue.

Applicant believes no fee is due with this response. However, if any fee is due, including fees for extensions of time, please charge our Deposit Account No. 22-0185, under Order No. 21482-00069-US from which the undersigned is authorized to draw.

The Examiner is respectfully requested to enter this Amendment After Final, in that it raises no new issues, but merely places the claims in a form more clearly patentable over the references of record. In the alternative, the Examiner is respectfully requested to enter this Amendment After Final in that it reduces the issues for appeal.

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Respectfully submitted,

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